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The plate has been measured by Mr. Adams, Miss Ware and Mr. St. John. The reductions were made by the use of the Hartmann formula and the resulting wave-length corrected for the motions of the Earth. The closely agreeing results are as follows:

Adams.....	5303.205	angstroms
St. John.....	.204	
Ware.....	.203	
Mean.....	5303.204	Rowland units
	.122	International units

As this value represents the wave-length at the east limb, it is subject to an unknown correction due to rotation. If, however, it be assumed that the rotation of the corona is of the same order as the rotation of the higher chromosphere, namely, that at the east limb it is approaching the Earth with a velocity of 2 km. per second, the correction is + 0.035 angstroms, making the Rowland and International wave-lengths 5303.239 and 5303.157 angstroms, respectively. This result confirms the observations of Campbell, Evershed and Fowler at the 1898 eclipse in showing that the wave-length of the green corona line is 5303 instead of 5317, which was the accepted wave-length for some years. The main value of the present observation is that it establishes the wave-length of the green corona line in terms of iron-arc standards and furnishes a basis for comparison with future similar observations.

C. E. ST. JOHN.

MOUNT WILSON OBSERVATIONS OF THE SPECTRUM OF NOVA AQUILAE No. 3

Nova Aquilae was first observed by Joy about ten o'clock P. S. T. on the evening of June 8th. Soon after midnight the spectrograph was attached to the 60-inch reflector and several photographs of the spectrum were secured. A series of observations was obtained on every night between June 8th and June 17th, and since the latter date on June 19th and 29th, July 2nd and July 9th. Beginning with the night of June 11th, the 40-inch camera which had been used at the solar eclipse was employed for some of the observations. A considerable number of the spectrograms, extending as far as $H\alpha$, cover the yellow and red portions of the spectrum.

The earliest recorded spectrum of the Nova may be classified in general as of the A-type with very broad hazy hydrogen bands displaced about 20 angstroms toward the violet. The magnesium line

at $\lambda 4481$ and a number of other lines are present and displaced by about the same amount. The H and K lines are represented by narrow dark lines displaced slightly to the violet, as well as by broad bands with the larger displacement. The H and He bands are not separated on these photographs.

A remarkable change took place in the spectrum during the interval of eighteen hours between the observations of June 9th and June 10th. A large number of relatively narrow absorption lines developed and the hydrogen helium lines appeared as doublets, separated by about 8 to 12 angstroms, the separation increasing toward longer wave-lengths. The double character of these lines at a certain stage in the spectrum of novae is well-known, being very prominent in the spectrum of *Nova Geminorum No. 2*. The broad bright hydrogen and helium bands were first seen with certainty on June 10th. This spectrum maintained most of its general characteristics until June 12th, when the fainter dark lines gradually disappeared. The hydrogen doublets changed greatly during this period.

Since June 12th the spectrum has shown great fluctuations in the character of the hydrogen and helium absorption lines and the intensity of the bright bands and the continuous spectrum. In general the bands have grown brighter and the continuous spectrum fainter, but the tendency is occasionally reversed. A very interesting phenomenon appeared on the spectrograms of June 26-28 when a fairly strong absorption band, superposed on each of the bright bands of helium and hydrogen, gave the latter a dumb-bell appearance, and the whole spectrum seemed to be made up of bright knots. This effect had nearly disappeared on the photographs of June 29th.

A spectrogram of *Nova Aquilae* made on June 11, when the absorption line spectrum was prominent, was compared with one of α *Cygni* under a spectro-comparator, and it was found that by a suitable displacement of the spectrum of the Nova a large number of lines could be identified with lines in α *Cygni*. Measurements have shown this displacement to be about 20 angstroms toward the violet at H γ , and apparently directly proportional to wave-length. The principal component of the hydrogen and helium lines is displaced by about the same amount.

Evidence of the presence of the bright bands corresponding to the nebular lines $\lambda 4363$ and $\lambda 5007$ was found as early as June 20th.

Both of these bands are seen as fringes on the red edges of stronger bright bands. The chief nebular line $\lambda 5007$ had become well-

marked by June 23.

W. S. ADAMS,

A. H. JOY.

NOTE ON THE DISTANT CLUSTER N. G. C. 6440.

In the April number of these *Publications* Curtis calls attention to the faint object N. G. C. 6440, which is in *Sagittarius* near the medial line of the Milky Way. His first plates indicated that it might be a spiral nebula, unique in its position near the galactic plane. A later plate by Thiele suggested rather that the object is a faint compact cluster. Because of the limited number of globular clusters, and the infrequency of their discovery in recent years, the object has particular significance in the study of magnitudes at Mount Wilson.

That N. G. C. 6440 is a very distant globular system appears certain from photographs with the 60-inch reflector in July of this year. Unlike other globular clusters, however, the nucleus appears distinctly double. Also, when we consider the magnitudes of the stars the angular diameter is larger than usual.

The most luminous stars in the cluster are slightly brighter than the eighteenth photographic magnitude. As they are probably the typical red giants that are found in all other globular clusters so far investigated, the parallax must be between ten and twenty millionths of a second of arc. Despite its low galactic latitude the object stands some ten thousand light-years from the galactic plane and therefore is well outside the equatorial region of the galactic system that is devoid of globular clusters. With a distance of more than 200,000 light-years, this may be the most remote object on record, but further study is necessary before the cluster and its stars can be finally accepted as sufficiently typical to be amenable to present methods of determining distances.

HARLOW SHAPLEY.

THE SPECTROGRAPHIC ORBIT OF THE ALGOL VARIABLE 3.1918
AURIGAE=BOSS 1646.

Five plates of this star, recently announced as an eclipsing variable by Schwab (*A. N.* 4928), were secured with the 18-inch camera. They are sufficient for an approximate determination of the orbit.